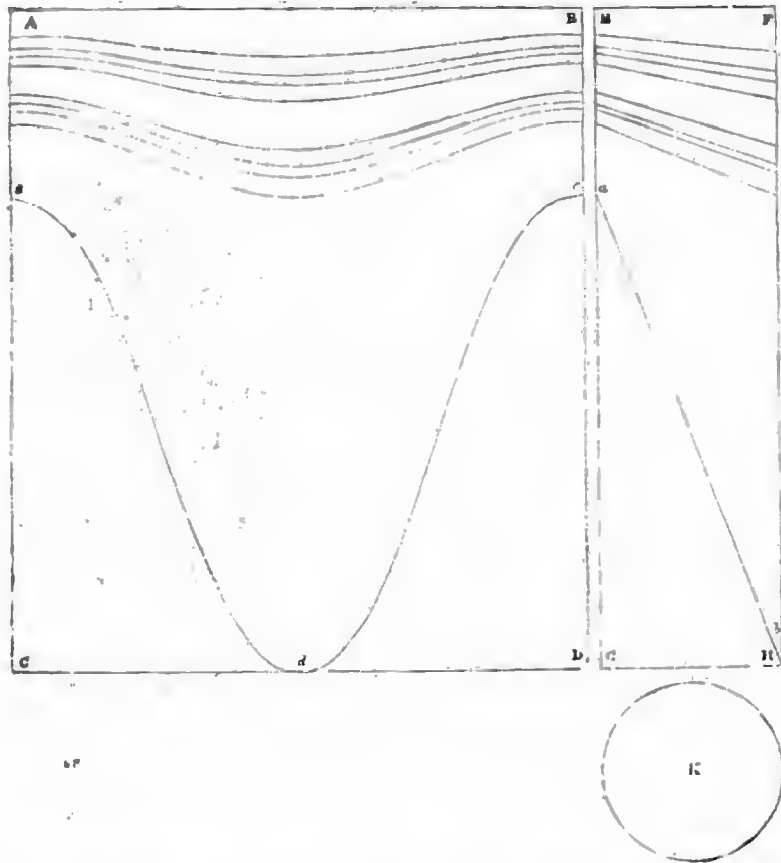


DEVELOPMENT OF THE PLANE SECTIONS OF CYLINDERS.

In the accompanying diagram, ABCD is the development on a plane of the surface of the cylinder EFGH, whose end or circular section is K.

If a cylinder is thus cut square at the ends, the sections will be circles, and if the cylinder is rolled on a plane, the circumferences of the circles of the ends will roll along right lines

parallel to each other. But if a cylinder is cut obliquely by a plane, say *a b*, the circumference of the plane section will be an ellipse, and while the cylinder is rolled on a plane the circumference of the ellipse will roll along a waved line *c d e*. The greater the obliquity of the plane section, the more the wave line will deviate from the right lines described or rolled by the square ends or circular sections.



Here is then a power of obtaining from a cylinder any gradation of this character of wave at will. The waves of development of the elliptic edges of oblique plane sections of cylinders, are all in four parts respectively symmetrical—that is, one quarter of any such wave contains all the variation of curvature in that wave. The curvature changing from some finite radius to infinite radius, in some finite distance.

In the accompanying example is shown, how a cylinder may be cut by a series of oblique planes, so that the development of them would give a series of waves which had the ancient Greeks known, they might have applied to the Ionic Capital. This would be proceeding on principle—principle which will admit of the strictest investigation, and in execution of the utmost degree of perfection or accuracy.

It may be here observed that there is a beautiful simplicity in the way that tangents to this class of waves, at the points of contrary flexure, may be determined with very great accuracy; as as to make portions of them applicable to many purposes, when a fair continuous line is required from a right line to a curve, and from a curve to a right line.

To determine the centre of curvature for the quickest parts of any wave of this class, say at the points *c, d*, and *e*, is submitted as a question (and many others might be submitted) to your mathematical readers.

JOSEPH JOPLIN.

29, Wimpole-street, 31st Dec. 1845.

RAILWAY DEPOSIT.—It is said Glyn and Co.'s bank, the largest railway bank in England, has paid into the Bank of England deposits to the amount of 1,500,000*l.*; Jones, Lloyd, and Co., 950,000*l.*; and Masterman and Co., 600,000*l.*

the moon's surface, drawn by herself on a silver plate.

Mr. Rettie's paper on a new code of signals and the construction of the signal lamps was next read, and illustrated by models and experiments. By the simple use of a pair of slides attached to an ordinary lantern, a combination of signals is effected, by which the loss of life and property by the collision of steam-boats and sailing-vessels, might be cheaply avoided.

PAVING BOARDS v. THE BUILDINGS ACT.

MR. EDITOR.—You will oblige by informing me through the columns of *THE BUILDER*, whether the several district surveyors are putting the new Buildings Act into operation as to shop-fronts and their projections, or whether the powers exercised by the paving boards of the different parishes supersede the authority of the district surveyors and the new Act? The insertion of this in *THE BUILDER*, with your answers to the two questions above-named, will oblige a constant reader.

J. H. S.

* * The referees awarded, in the case of a stone eagle set up by the Messrs. Bailly of Royal Exchange Buildings (see *THE BUILDER*, p. 577, Vol. III.), "That although by virtue of the provisions of the Metropolitan Buildings Act, cited in the said requisition, certain projections may project beyond the general line of fronts in any street or alley, subject to the restrictions therein set forth, yet such provisions are to be deemed to be permissive to such extent only, as any other law may not prohibit the subject matter thereof; and that the provision in Section 5 of the said Metropolitan Buildings Act, which requires that the provisions of that Act be observed, notwithstanding any thing contained to the contrary in any other Act of Parliament then in force, is to be deemed to apply to such provisions of the Metropolitan Buildings Act as are obligatory, and not to such as are permissive only."

THE COMPETITION CARTOONS.

MR. FRANK HOWARD has addressed a letter to us (on our refusal to insert his previous communication), which is the most extraordinary specimen of bullying lying insolence we ever had the fortune to receive. We beg leave to inform this person we are not to be driven from our course by his threats, and have no intention of giving increased circulation to the unwarrantable insinuation commented on by our correspondent, "An Old Writer," by reprinting it. *The Athenaeum* is accessible to all, is read by all, and all may therefore see whether or not Mr. Howard's meaning was perverted by "An Old Writer."

As to the falsehoods that he threatens (far south) to make public in the event of our refusal to insert his letter, although personally indifferently to them, we offer him a timely word of caution. He has already exposed himself to the derision of his contemporaries: let him take care that he does not entail upon himself their contempt. We are not anxious to assist his desire to thrust himself into public notice, but if we are forced to speak again on the matter, it shall be loudly and to the purpose.

PROPOSED IMPROVEMENT IN PICCADILLY.—We have already referred to the very great improvements which have been progressing for some time past in Piccadilly; the street has been considerably widened by throwing into it a portion of the adjoining park, and a neat iron railing has been erected, through which some cheerful scenery may be viewed even by pedestrians. These improvements being now nearly finished, a correspondent is desirous of drawing attention through the medium of our columns to the pleasing effect produced by allowing the row of trees to remain along the distance from Park-lane to Down-street, and suggests the desirableness of constructing the row some distance farther east, even to Cambridge House. We cordially join in the suggestion, and cannot imagine any valid objection to its adoption.

SOCIETY OF ARTS.

THIS society met on Wednesday evening, 28th inst., W. F. Cooke, Esq., in the chair. The first paper read was by Mr. Claudet, on some principles and practical facts in the art of photography, and contained a series of scientific researches, and communicated several important discoveries in this curious field of research. This paper was a sequel to a communication read by Mr. Nott on a previous evening, in which he had endeavoured to establish that the rays which make the photographic picture are different from those which produce light, and this he thought he had proved by means of pictures formed with a polarized ray reflected from parallel plates. Mr. Claudet contended that the rays of light are the agent. He had made many experiments on forming pictures by reflection, but had not been able to discover any essential difference between them and such as are formed by the direct ray.

His next series of experiments regarded the photographic qualities of light of different colours, blue proved to be the most powerful photographic agent, yellow the weakest. One of the most beautiful experiments by which this was proved consisted in throwing the prismatic spectrum on paper, and on the silver plate, the colours being marked on the paper and the effect remaining on the photographic plate. He thus shewed that the photographic prism presents effects very different from the apparent intensity of the prismatic spectra. A remarkable specimen was shewn of a silver plate on which the rays of light had brought out a powerful picture, without the action of mercury.

Another series of experiments made, was on the photographic action of the rays of the moon, which had formed a powerful picture by five minutes' exposure. He hopes to be able to obtain a very accurate daguerreotype of